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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,443	12/19/2001	Charles L. Gray JR.		2093

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EXAMINER	
HOOK, JAMES F	
ART UNIT	PAPER NUMBER
3754	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,443

Applicant(s)

GRAY, CHARLES L.

Examiner

James F. Hook

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8,11,12,14 and 16-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,12,14,16-18 and 20-26 is/are rejected.
- 7) ☒ Claim(s) 11 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there is no discussion in the specification stating that the coil spring of claims 11 and 19 is attached to the second fixture and external to and surrounding the shut off valve, where the specification and the drawings seem to show and discuss the spring element being attached to the bladder, however, such is an original claim limitation so it would not be new matter to add such language to the specification to make it clear that such is supported by the specification.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the coil spring attached to the second fixture as set forth in claims 11 and 19 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

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changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 6, 8, 17, 22, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Mercier (975). The patent to Mercier discloses the recited pressure vessel which is a hydraulic accumulator for storing mechanical energy comprising a rigid tank 11, first and second fixtures generally at 21 and 41, a flexible non-elastic bladder in the form of a non accordion bag 27 which is made of Mylar which is known to be a material of a thin metal layer attached to a plastic film, where the bag is mounted in the tank and in communication with the fixtures to separate the tank into a gas space and a working fluid space, a shut off valve 51 is movable from an open to closed position in response to the bag which can fill the entire tank when the accumulator falls to a predetermined low value, the fluid is external of the bag and the gas is internal to

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the bag, the bladder is a metal foil as set forth above being made of Mylar which inherently is a flexible polymer film, there inherently is a source of gas and fluid, and the valve opens and closes the second fixture 41, the bladder is seen to be oversized so that in it's expanded state it can fill the tank, and the use of such for a hybrid motor vehicle is merely intended use where such an accumulator is capable of use in such a system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5-8, 12, 17 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drumm in view of Weber (012) and Taylor (3,526,580). The patent to Drumm discloses the recited hydraulic accumulator comprising a rigid tank 1, there is a first fixtures at the end of the tank for communication with a fluid through the bottom fixture in the area of reference numeral 5, a flexible metal non elastic bladder 2 in the form of a bellows made of a metal that separates the interior of the tank into a gas space 3 and a fluid space 4, and a shut off valve 7 will stop flow when the liquid hits a minimum value by contacting the bottom of the bladder 16, where the valve is provided with a spring to actuate it, and the use of such for a hybrid motor vehicle is merely intended use where such an accumulator is capable of use in such a system. The

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patent to Drumm discloses all of the recited structure with the exception of providing a port and valve to control gas flow into the gas chamber, forming the bladder as a non-bellows bag, forming the bladder with a plastic and metal layer, the thickness of the metal layer, and reversing whether the gas is inside or outside of the bladder. The patent to Weber discloses the recited hydraulic accumulator comprising a rigid tank 3, there are first and second fixtures at each end of the tank for communication with a fluid through the bottom fixture in the area of reference numeral 15 and with a gas through the top fixture in the area of reference numeral 5, a flexible metal non elastic bladder 9 in the form of a bellows made of a metal that separates the interior of the tank into a gas space 7 and a fluid space inside of the bladder, a shut off valve 20 will stop flow when the liquid hits a minimum value, and in figure 2 the bellows is reversed to contain the gas. It would have been obvious to one skilled in the art to modify the accumulator in Drumm by providing a second port and valve for the control of the amount of gas in the system as such would allow for more control over the function of the accumulator and make it better to accommodate different situations and a wider range of uses as suggested by Weber, and to reverse the position of the gas chamber to be outside the bellows as such is a known equivalent embodiment as suggested by Weber. The patent to Taylor discloses the recited hydraulic accumulator comprising a housing 10 provided with a non elastic bladder 20 which is formed of a plurality of layers including plastics and a metal film layer which is considered the equivalent of a foil layer when disposed on the plastic layer, and as seen in the drawings the bladder can be formed as a non-bellows bag. The use of any thickness of metal is considered an obvious choice

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of mechanical expedients where one skilled in the art would only need routine experimentation to arrive at optimum values to prevent the desired amount of leak and permeation resistance as such is merely a choice of mechanical expedients. It would have been obvious to one skilled in the art to modify the bladder in Drumm to be formed as a non-bellows bag provided with a metal and plastic layer as such is a known equivalent type of bladder used in accumulators as suggested by Taylor where such would provide for a cheaper and simpler bladder to that of the accordion pleated metal only bladder of Drumm.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mercier (975) in view of Weber (012). The patent to Mercier discloses all of the recited structure with the exception of reversing where the gas and liquid are located in the tank, specifically what side of the bladder each is on. The patent to Weber discloses the recited hydraulic accumulator comprising a rigid tank 3, there are first and second fixtures at each end of the tank for communication with a fluid through the bottom fixture in the area of reference numeral 15 and with a gas through the top fixture in the area of reference numeral 5, a flexible metal non elastic bladder 9 in the form of a bellows made of a metal that separates the interior of the tank into a gas space 7 and a fluid space inside of the bladder, a shut off valve 20 will stop flow when the liquid hits a minimum value, and in figure 2 the bellows is reversed to contain the gas. It would have been obvious to one skilled in the art to modify the accumulator in Mercier by reversing the position of the gas chamber to be outside the bellows as such is a known equivalent

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embodiment as suggested by Weber, where such would allow for alternate uses which from the same structure just by reversing the working fluids thereby saving money.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mercier (975). The patent to Mercier discloses all of the recited structure with the exception of stating how thick the metal foil is, however, such is considered merely a choice of mechanical expedients and it would have been obvious to one skilled in the art to use routine experimentation to arrive at optimum working values as such would only require routine skill in the art to change wall thickness to meet the needs of the user.

Claims 14, 16, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drumm in view of Weber (012), Taylor, and Miller. The patent to Drumm discloses all of the recited structure above with the exception of providing a vent in the tank in communication with the liquid space, providing a port and valve to control gas flow into the gas chamber, forming the bladder as a non-bellows bag, the thickness of the metal layer, and reversing whether the gas is inside or outside of the bladder. The patent to Weber discloses the recited hydraulic accumulator comprising a rigid tank 3, there are first and second fixtures at each end of the tank for communication with a fluid through the bottom fixture in the area of reference numeral 15 and with a gas through the top fixture in the area of reference numeral 5, a flexible metal non elastic bladder 9 in the form of a bellows made of a metal that separates the interior of the tank into a gas space 7 and a fluid space inside of the bladder, a shut off valve 20 will stop flow when the liquid hits a minimum value, and in figure 2 the bellows is reversed to contain the gas. It would have been obvious to one skilled in the art to modify the

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accumulator in Drumm by providing a second port and valve for the control of the amount of gas in the system as such would allow for more control over the function of the accumulator and make it better to accommodate different situations and a wider range of uses as suggested by Weber, and to reverse the position of the gas chamber to be outside the bellows as such is a known equivalent embodiment as suggested by Weber. The patent to Miller discloses the recited hydraulic accumulator comprising a rigid tank 18, there are first and second fixtures 23,24 and the unmarked tube between reference numerals 22 and 27 for communication with a fluid through the bottom fixtures 23,24 and with a gas through the top fixture in the area of reference numeral 22, a bladder 20 in the form of a gas filled bladder separates the interior of the tank into a gas space and a fluid space inside of the bladder, and where a vent 27 for any gas accumulated in the liquid side of the bellows can be vented where the vent 27 is considered in the end of the tank. It would have been obvious to one skilled in the art to provide the tank in Drumm with a vent to allow for the release of any gas accumulated in the fluid space as suggested by Miller to allow the system to work more efficiently without the losses that could be accrued by having gas in the liquid space. The patent to Taylor discloses the recited hydraulic accumulator comprising a housing 10 provided with a non elastic bladder 20 which is formed of a plurality of layers including plastics and a metal film layer which is considered the equivalent of a foil layer when disposed on the plastic layer, and as seen in the drawings the bladder can be formed as a non-bellows bag. It would have been obvious to one skilled in the art to modify the bladder in Drumm to be formed as a non-bellows bag provided with a metal and plastic layer as

such is a known equivalent type of bladder used in accumulators as suggested by Taylor where such would provide for a cheaper and simpler bladder to that of the accordion pleated metal only bladder of Drumm. The use of any thickness of metal is considered an obvious choice of mechanical expedients where one skilled in the art would only need routine experimentation to arrive at optimum values to prevent the desired amount of leak and permeation resistance as such is merely a choice of mechanical expedients. It would have been obvious to one skilled in the art to make the metal bladder in Drumm as modified to be of any thickness as such would only require routine experimentation to arrive at optimum values as such is merely a choice of mechanical expedients.

Claims 14, 16, 18, 20, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercier (975) in view of Miller. The patent to Mercier discloses all of the recited structure as set forth above with the exception of providing a vent in the tank. The patent to Miller discloses the recited hydraulic accumulator comprising a rigid tank 18, there are first and second fixtures 23,24 and the unmarked tube between reference numerals 22 and 27 for communication with a fluid through the bottom fixtures 23,24 and with a gas through the top fixture in the area of reference numeral 22, a bladder 20 in the form of a gas filled bladder separates the interior of the tank into a gas space and a fluid space inside of the bladder, and where a vent 27 for any gas accumulated in the liquid side of the bellows can be vented where the vent 27 is considered in the end of the tank. It would have been obvious to one skilled in the art to provide the tank in Mercier with a vent to allow for the release of any gas accumulated in the fluid space as

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suggested by Miller to allow the system to work more efficiently without the losses that could be accrued by having gas in the liquid space.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mercier (975) in view of Hafner. The patent to Mercier discloses all of the recited structure set forth above with the exception of providing an open celled foam in the interior of the bladder. The patent to Hafner discloses that it is old and well known in the art to provide bladders in accumulators with a foam 5,6, where inherently such would be an open cell foam, to avoid losses in hydrostatic bladder type storage devices. It would have been obvious to one skilled in the art to modify the bladder in Mercier by providing a foam material as suggested by Hafner where such would avoid losses in the bladder storage device of Mercier and thereby save money.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mercier (975) in view of Miller as applied to claims 14, 16, 18, 20, 24, and 26 above, and further in view of Hafner. The patent to Mercier as modified discloses all of the recited structure set forth above with the exception of providing an open celled foam in the interior of the bladder. The patent to Hafner discloses that it is old and well known in the art to provide bladders in accumulators with a foam 5,6, where inherently such would be an open cell foam, to avoid losses in hydrostatic bladder type storage devices. It would have been obvious to one skilled in the art to modify the bladder in Mercier as modified by providing a foam material as suggested by Hafner where such would avoid losses in the bladder storage device of Mercier and thereby save money.

Allowable Subject Matter

Claims 11 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed March 23, 2005 have been fully considered but they are not persuasive. The modification of Drumm with the teachings of Taylor are still considered pertinent where the modification of the bag in Drumm in view of Taylor is a change in shape from pleated to non pleated where Taylor teaches that metal bags can be non pleated in accumulator structures, and Taylor sets forth the use of such for diaphragms in pressure responsive systems which is what the bag in Drumm is the equivalent of. Such a modification would merely change the external shape of the bag and would not exclude such from being used with a sensor, and likewise the shape change would not specifically change the manner in which the bag functions therefore it is not clear why such would not react the same way whether it was pleated or not, where Taylor teaches such bags need not be pleated. Taylor teaches that the bladder recited within his patent is useable in a wider range of uses which would include the same type of bladder used in Drumm for similar usage, therefore the argument that these two references are in different fields of endeavor such is not persuasive when Taylor teaches other uses.

Conclusion

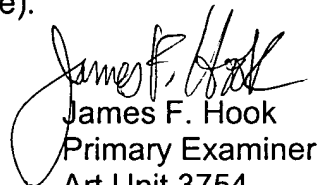
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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references to Gray, Jr (325 and 041), Bartsch, Simmons, Mercier (648), and Sugimura disclosing state of the art accumulators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James F. Hook whose telephone number is (571) 272-4903. The examiner can normally be reached on Monday to Wednesday, work at home Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mar can be reached on (571) 272-4906. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


James F. Hook
Primary Examiner
Art Unit 3754

JFH